

REMARKS

Claims 1-24 were submitted for examination. The present response cancels claim 15, 18 and 24 without prejudice; amends claims 1-4, 6-7, 9-14, 16, 19-20 and 22; and adds new claims 25-26. After the present claim cancellation, amendments, and additions, claims 1-14, 16-17, 19-23, and 25-26 are pending in the application.

I. Allowed Subject Matter

Applicant acknowledges the allowance of claims 5-11 and the allowability of claims 13, 18, 20 and 24 if rewritten in independent forms. Although claims 18 and 24 have been cancelled, the subject matters recited in those claims have been included in the corresponding independent claims 16 and 22, respectively, as discussed below. Claims 6-7, 9-11 and 20 have been amended to remove the word “step” appearing therein to insure that the limitations are not construed as “step-plus-function” clauses under 35 U.S.C. § 112, ¶ 6. However, no change in scope of these claims is intended by such removal of the word “step.” The allowable dependent claim 13 has been amended to correspond with the amendments to its independent claim 12, without substantively affecting claim 13. In view of the present claim amendments and additions, discussed below, Applicant asserts that all of the pending claims are now allowable.

II. Section 103 Rejections (claims 1-4, 12, 14-15, 19, 21)

Claims 1 and 4 were rejected under 35 U.S.C. § 103(a) as being obvious over Pfister H., “Architectures for Real-time Volume Rendering” (hereafter “Pfister”) and United States Patent No. 6,509,905 to Hochmuth et al. (hereafter “Hochmuth”). Claims 2 and 3 were rejected under 35 U.S.C. § 103(a) as being obvious over Pfister and Hochmuth in view of U.S. Patent No. 5,630,034 to Oikawa et al. (hereafter “Oikawa”). Claims 12 and 14 were rejected under 35 U.S.C. § 103(a) as being obvious over Pfister in view of Oikawa. Claim 15 was rejected under 35 U.S.C. § 103(a) as being obvious over the OpenGL Reference Manual (hereafter “the Manual”) in view of U.S. Patent No. 5,886,701 to Chauvin et al. (hereafter “Chauvin”). And, claims 19 and 21 were rejected under 35 U.S.C. § 103(a) as being obvious over Pfister.

The rejection of claim 15 is moot in view of the present cancellation of claim 15. Because of the similar nature of amendments to independent claims 1, 12 and 19, Applicant does not individually discuss each cited reference in detail and, hence, all § 103(a) rejections are addressed together herein without a detailed analysis of each individual rejection. Applicant, however, reserves the right to individually address each cited reference or the combinability of the references (as suggested by the Examiner) in the future should that be necessary.

Applicant wishes to note at the outset that through present claim amendments each appearance of the word “step” in claims 2-4, 12 and 14 has been removed to insure that the limitations are not construed as “step-plus-function” clauses under 35 U.S.C. § 112, ¶ 6.

Each of the independent claims 1 and 12 has been amended to recite storing the values—“the density values” (claim 1) or “the values produced by the rasterizing” (claim 12)—as “density textures for later use.” Similarly, the independent claim 19 has been amended to recite “using density texture values as pointers for retrieving information from a lookup table.” The amendment to claim 19 thus provides proper antecedent support to the already-existing recitation of “density texture values” in its dependent claim 20, which was found to be allowable by the Examiner. Thus, each of claims 1, 12, and 19 now requires storage or use of “density textures,” in combination with other limitations recited therein.

In view of the Examiner’s statement of reasons for the indication of allowable subject matter (Office Action, page 1, item 2), and further in view of the present claim amendments, Applicant asserts that none of the cited references, Pfister, Hochmuth, or Oikawa, either alone or in the combination applied in the Office Action, teaches or suggests the storage or use of “density textures” in the manner recited in amended independent claims 1, 12, and 19. Therefore, Applicant asserts that the combination of claim limitations recited in each amended independent claim 1, 12, and 19 is patentable in view of the cited references. Hence, reconsideration and allowance of amended claims 1, 12, and 19 is respectfully requested.

The dependent claims 2-4, 14, and 21 depend from respective allowable independent claims 1, 12, and 19 and, hence, are also allowable at least for the reasons given hereinabove.

Appl. No.: 09/810,654
Docket No.: DB000911-000
Amdt. Dated: August 23, 2004
Reply to Office action of July 1, 2004

Although Applicant does not present separate arguments in favor of the patentability of these dependent claims, Applicant reserves the right to submit those arguments should that become necessary.

Based on the foregoing discussion, Applicant asserts that the cited combinations of Pfister, Hochmuth, or Oikawa fail to teach or suggest all claim limitations recited in pending claims 1-4, 12, 14, 19 and 21, and, hence, fail to render these claims obvious under 35 U.S.C. § 103(a). Applicant therefore requests that the Examiner withdraw the § 103(a) rejections of pending claims 1-4, 12, 14, 19 and 21.

III. Section 102(b) Rejection

Claims 16-17 and 22-23 were rejected under 35 U.S.C. § 102(b) as being anticipated by Pfister. Applicant traverses the § 102(b) rejection of those claims in view of the following remarks.

Each of the independent claims 16 and 22 has been amended to recite use of “a density-texture as a pointer” to the information in a look-up table. Such use was already recited in the respective dependent claims 18 and 24, which are now cancelled, but were found by the Examiner to be allowable (Office Action, page 1, item 1). In view of the Examiner’s statement of reasons for the indication of allowable subject matter (Office Action, page 1, item 2), and further in view of the present claim amendments, Applicant asserts that all claim limitations in each of the amended independent claims 16 and 22 are not taught by Pfister. Therefore, amended independent claims 16 and 22 are not anticipated by Pfister. Hence, reconsideration and allowance of amended claims 16 and 22 is respectfully requested.

The dependent claims 17 and 23 depend from respective allowable independent claims 16 and 22 and, hence, are also allowable at least for the reasons given hereinabove. Although Applicant does not present separate arguments in favor of the patentability of these dependent claims, Applicant reserves the right to submit those arguments should that become necessary.

Appl. No.: 09/810,654
Docket No.: DB000911-000
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Reply to Office action of July 1, 2004

Based on the foregoing discussion, Applicant asserts that Pfister fails to teach all claim limitations recited in pending claims 16-17 and 22-23, and, hence, fails to anticipate those claims under 35 U.S.C. § 102(b). Applicant therefore requests that the Examiner withdraw the § 102(b) rejection of pending claims 16-17 and 22-23.

IV. New Claims

The present response adds claim 25 to recite use of “density textures” generated and stored prior to the rendering of a volumetric dataset. On the other hand, the added claim 26 recites generation and storage of “density textures for said volumetric dataset prior to rendering said volumetric dataset.” Based on the foregoing discussion, Applicant asserts that such use (claim 25) or generation and storage (claim 26) of density textures, as recited in the new claims 25 and 26, is neither taught nor suggested by the teachings in any of the cited references—Pfister, Hochmuth, Oikawa, the Manual, or Chauvin—either applied alone or in an appropriate combination. Hence, the new claims 25 and 26 are neither anticipated nor rendered obvious by the teachings in the cited references. Therefore, consideration and allowance of new claims 25 and 26 is respectfully requested.

Appl. No.: 09/810,654
Docket No.: DB000911-000
Amdt. Dated: August 23, 2004
Reply to Office action of July 1, 2004

CONCLUSION

In the present response, all objections and rejections to the claims in the Office Action of July 1, 2004 are believed to have been addressed. Applicant therefore asserts that all pending claims 1-14, 16-17, 19-23, and 25-26 are in condition for allowance and a notice by the Office to this effect is respectfully requested. If the Examiner has any questions, comments or suggestions, the undersigned Attorney earnestly requests a telephone conference at the Examiner's convenience.

Respectfully submitted,



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